

9.9.03

## ABSTRACT

An optical recording method for recording mark length-modulated information on a recording medium by using a plurality of recording mark lengths. The optical recording method comprises the steps of:

- 5 when a time length of one recording mark is denoted  $nT$  ( $T$  is a reference clock period equal to or less than 25 ns, and  $n$  is a natural number equal to or more than 2),

(i) dividing the time length of the recording mark  $nT$  into

$$\eta_1 T, \alpha_1 T, \beta_1 T, \alpha_2 T, \beta_2 T, \dots, \alpha_m T, \beta_m T, \eta_2 T$$

- 10 in that order ( $m$  is a pulse division number;  $\sum_i (\alpha_i + \beta_i) + \eta_1 + \eta_2 = n$ ;  $\alpha_i$  ( $1 \leq i \leq m$ ) is a real number  $> 0$ ;  $\beta_i$  ( $1 \leq i \leq m-1$ ) is a real number  $> 0$ ;  $\beta_m$  is a real number  $\geq 0$ ; and  $\eta_1$  is a real number of  $-2 \leq \eta_1 \leq 2$  and  $\eta_2$  is a real number of  $-2 \leq \eta_2 \leq 2$ );

- 15 radiating recording light with a recording power  $Pw_i$  in a time duration of  $\alpha_i T$  ( $1 \leq i \leq m$ ), and radiating recording light with a bias power  $Pb_i$  in a time duration of  $\beta_i T$  ( $1 \leq i \leq m$ ), the bias power being  $Pb_i < Pw_i$  and  $Pb_i < Pw_{i+1}$ ; and

(ii) changing  $m$ ,  $\alpha_i$ ,  $\beta_i$ ,  $\eta_1$ ,  $\eta_2$ ,  $Pw_i$  and  $Pb_i$  according to  $n$  of the time length  $nT$  of the recording mark;

- 20 wherein the pulse division number  $m$  is 2 or more for the time duration of at least one recording mark and meets  $n/m \geq 1.25$  for the time length of all the recording marks.